ISSUE DATE: 05/15/07

PROGRAM INFORMATION BULLETIN NO. P07-14

FROM: MARK E. SKILES
Director of Technical Support

KEVIN G. STRICKLIN
Administrator for Coal
Mine Safety and Health

FELIX A. QUINTANA
Administrator for Metal and Nonmetal
Mine Safety and Health

SUBJECT: Fastenings Used for Joints of Flame-Arresting Paths on Intake or Exhaust Systems for Permissible Diesel-Powered Equipment

Who needs this information?

Mine Safety and Health Administration (MSHA) personnel, underground coal mine operators, underground metal and nonmetal operators, miner's representatives, mine equipment manufacturers, and repair/rebuild facilities should have this information.

Why is MSHA issuing this Program Information Bulletin?

This Program Information Bulletin (PIB) re-emphasizes the Title 30 Code of Federal Regulations (30 C.F.R.) requirement that fastenings used for joints of flame-arresting paths on intake or exhaust systems for permissible diesel-powered equipment should be used only for attaching parts that are essential in maintaining the explosion-proof integrity.

MSHA's Approval and Certification Center (A&CC) identified permissible diesel-powered equipment operating in underground mines where brackets were attached to an alternate air intake port cover and exhaust manifold using the flame-arresting path fasteners that attach the cover and exhaust manifold.

What permissible diesel-powered equipment does this PIB address?
This PIB addresses permissible diesel-powered equipment that is approved under 30 CFR Part 36. This equipment is equipped with a permissible diesel power package (safety component system) approved under 30 CFR Part 7, Subpart F or certified under 30 CFR Part 36.

What is the requirement for fastenings used for joints of flame-arresting paths on intake or exhaust systems on a permissible power package (safety component system)?
30 C.F.R. § 7.98(q)(5) states:
"Fastenings used for joints of flame-arresting paths on intake or exhaust systems shall be used only for attaching parts that are essential in maintaining the explosion-proof integrity. They shall not be used for attaching brackets or other parts."

30 C.F.R. § 36.20(a) states:
"MSHA will test only equipment that in the opinion of its qualified representatives is constructed of suitable materials, is of good quality workmanship, based on sound engineering principles, and is safe for its intended use."

In addition, 30 C.F.R. § 18.32(f) which was applied when the A&CC issued many of the power package (safety component system) certifications, states:

"Fastenings used for joints on explosion-proof enclosures shall not be used for attaching nonessential parts or for making electrical connections."

What are the potential hazards of using flame-path fasteners to attach nonessential parts, brackets, or for making electrical connections?
Using flame-path fasteners to attach a nonessential part or bracket presents three potential hazardous conditions.

The first hazardous condition exists if the part is attached with a fastener whose length does not provide proper thread engagement. The additional thickness of the part or bracket may decrease the amount of thread engagement. Without proper thread engagement, the power package no longer complies with § 7.98(p)(2)(ix) of 30 C.F.R. Part 7 Subpart F or § 18.31(a)(6) of 30 C.F.R. Part 18 Subpart B, and the holding capability of the fastener is reduced.

The second hazardous condition exists when one of the flanges of the joint has blind holes and more than one length fastener is used to accommodate the bracket. In this case, if a longer fastener is inadvertently placed in one of the blind holes, where the bracket is not located, the fastener may bottom out before the joint is tight. This will result in a loose joint and an open flame-path.

The third hazardous condition exists when a part may be exposed to additional vibration due to its configuration and mounting location. The additional vibration on the component and mounting bracket may degrade the holding capability of the fastener and cause the fastener to loosen.

What action should be taken?

Examine the flame-path joint fasteners on your permissible power package (safety component system) intake and exhaust components. Contact one of the A&CC contacts below if these fasteners are used to attach nonessential parts, brackets, or for making electrical connections. The A&CC will evaluate the equipment approval documentation on file at the A&CC to determine the necessary action. The A&CC will contact the equipment approval holder to develop a plan to retrofit the equipment as needed.

What is the background for this PIB?

The A&CC discovered two different brackets attached using flame-path joint fasteners during a field modification inspection. The fuel rack shutdown cylinder bracket and alternate air intake port surge tank bracket were attached using flame-path joint fasteners.

The A&CC is working with the equipment manufacturer to correct the equipment in the field.

What is MSHA's authority for this PIB?

The Federal Mine Safety and Health Act of 1977, as amended, 30 U.S.C. § 801 et seq.; 30 C.F.R. § 7.98(p)(2)(ix), § 7.98(q)(5), § 18.31(a)(6), § 18.32(f), and § 36.20(a).

Internet Availability

This information bulletin may be viewed on the Internet by accessing MSHA's home page at http://www.MSHA.gov and then choosing Compliance Info, and Program Information Bulletins.

Who are the MSHA contact persons for this PIB?

Coal Mine Safety and Health, Safety Division
Terry Bentley, (202) 693-9521
E-mail: Bentley.Terry@dol.gov

Metal and Nonmetal Safety and Health
Neal H. Merrifield, (202) 693-9640
E-mail: Merrifield.Neal@dol.gov

Technical Support, Approval and Certification Center
Gary Clark, (304) 547-2068
E-mail: Clark.Gary@dol.gov

or
Steve Cole, (304) 547-2304
E-mail: Cole.Stephen@dol.gov

Who will receive this PIB?

MSHA Program Policy Manual Holders
Underground Mine Operators
MSHA Enforcement
Mine Equipment Manufacturers
Repair and Rebuild Facilities
Miners' Representatives
Special Interest Groups